

Title	Temporal and spatial effects inside a compact and CEP stabilized, few-cycle OPCPA system at high repetition rates
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Abstract	<p>We present a compact and ultra-stable few-cycle OPCPA system. In two non-collinear parametric amplification stages pulse energies up to 17 μJ at 200 kHz repetition rate are obtained. Recompression of the broadband pulses down to 6.3 fs is performed with chirped mirrors leading to peak powers above 800 MW. The parametric amplification processes were studied in detail employing (2 + 1) dimensional numerical simulations and compared to experimental observations in terms of spectral shapes, pulse energy, spatial effects as well as delay dependent nonlinear mixing products. This gives new insights into the parametric process and design guidelines for high repetition rate OPCPA systems.</p>
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